

Geology and Petrogenesis of the Plutonic Rocks of
North Mountain, River Denys Area, Central Cape Breton Island

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North Mountain covers a 6 x 24 km area, bordering on Bras d'Or Lake, located approximately 35 km northeast of Port Hawkesbury, Cape Breton Island. During the 1985 field season the study area was mapped and sampled as a basis for an M.Sc. thesis at Acadia University.

The greater part of North Mountain consists of granitoid rocks which intrude the Precambrian George River Group carbonate-clastic sequence and a "gneissic complex" whose age and relation to the George River Group is unclear. Field mapping suggests that there are at least two major phases of granitoid rocks; a light colored, medium to coarse-grained, massive to weakly lineated, biotite-hornblende granodiorite to quartz monzodiorite and a pink, coarse-grained, massive, highly fractured, feldspar-megacrystic, biotite-hornblende monzogranite to quartz monzonite. The relations between these two units has not been clearly determined due to poor exposure. A small body of diorite predates the granodiorite unit. The George River Group consists of complexly folded quartzite, phyllite, limestone and dolomite, or marble, and minor mafic volcanic rocks. These

rocks are all of unusually low metamorphic grade in proximity to the surrounding granitoids, and are in sharp contrast to adjacent(?) higher metamorphic grade rocks of the "gneissic complex". The "gneissic complex" appears to be dominantly composed of quartz-feldspar-biotite gneiss of metasedimentary(?) origin, minor orthogneiss(?), and less common intercalated carbonate rocks. These carbonate units are host to the Lime Hill zinc deposit. The "gneissic complex" is intruded by a variety of granitoid phases from "dioritic" to "granitic". The rocks of the "gneissic complex" may represent either metamorphosed equivalents of the George River Group or a separate, older, basement unit(?).

The granitoid rocks of the area will be the subject of detailed petrographic and geochemical studies, including possible age dating, in order to determine their chemistry and petrogenesis. The host rocks will be examined to help determine the environment of emplacement. The study will include comparisons of the rocks of the area with other granitoid terrains of Cape Breton Island.